Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	§	
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	§	PS Docket No. 07-114
Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems.	§	
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COMMENTS OF NENA: THE 9-1-1 ASSOCIATION

NENA: The 9-1-1 Association[1] hereby submits the following comments in response to the Public Notice ("Notice")[2] in the above-captioned proceeding on the Commission's 9-1-1 location accuracy requirements, specifically those governing indoor location accuracy in the z-axis. NENA recognizes that although the Test Bed, LLC's Stage Z report yielded promising results for indoor z-axis location accuracy, CTIA and the wireless carriers have expressed reservations regarding the broad applicability of these results.[3,4] CTIA has requested that the Commission refrain from adopting a metric at this time "to allow for a more accurate Z-axis metric that is validated and supported in test results," a recommendation NENA supports.[5] Assuming a modest extension of the Commission's deadline is possible, NENA hopes that the Test Bed will

[1] NENA: The 9-1-1 Association improves 9-1-1 through research, standards, development, training, education, outreach, and advocacy. Our vision is a public made safety and more secure through universally-available, state-of-the-art 9-1-1 systems and trained 9-1-1 professionals. NENA is the only professional organization solely focused on 9-1-1 policy, technology, operations, and education issues.
[2] *See* Public Safety and Homeland Security Bureau Seeks Comment on Vertical (Z-Axis) Accuracy Metric Proposed by the Nationwide Wireless Carriers, PS Docket No. 07-114, September 10, 2018, https://ecfsapi.fcc.gov/file/0910993124543/DA-18-928A1.pdf
[3] Test Bed LLC is "an independent company to administer and operate the indoor Test Bed consistent with the FCC's rules." http://www.911locationtestbed.org/.
[4] *See* Ex Parte of CTIA re: Wireless E-9-1-1 Location Accuracy Requirements (PS Docket No. 07-114) Submission of Z-axis Metric and Report, August 3, 2018 (hereinafter "CTIA Z=Axis Cover Letter")
[5] *See* Ex Parte of CTIA re Wireless E-9-1-1 Location Accuracy Requirements (PS Docket No. 07-114) Submission of Z-axis Metric and Report, October 1, 2018.

recognize the exceptional circumstances and allow the additional Stage Z testing to occur as quickly as is practicable for the involved parties.

Absent an extension, NENA believes that the ±5-meter z-axis accuracy benchmark originally proposed by CTIA is neither sufficiently supported by the Test Bed's Stage Z Report nor sufficiently precise for the purposes of 9-1-1. Citizens and public safety require, in the absence of a dispatchable location solution, a z-axis accuracy benchmark of ±3 meters (floor level, as described in the Commission's 2014 *Third Report and Order*).[6] A ±3 meter requirement is not only achievable using existing technologies, but will also spur innovation in the indoor location industry and accelerate the development of new technologies and techniques for locating 9-1-1 callers, first responders, and everyday citizens.

I. Background

In its 2015 *Fourth Report and Order*, the Commission required "nationwide CMRS providers [to] use an independently administered and transparent test bed process to develop a proposed z-axis accuracy metric and to submit the proposed metric to the Commission for approval."[7] In compliance with that deadline, CTIA submitted, alongside the Test Bed, LLC's Stage Z Report, a letter containing its recommendation for a z-axis indoor location accuracy metric on August 3, 2018.[8] While both participating companies returned promising results, CTIA was quick to note shortcomings in the results and methodologies of the technologies tested.[9] Citing these factors and noting that additional testing would better inform the discussion, CTIA proposed a z-axis benchmark metric of ±5 meters.[10]

[6] Wireless E911 Location Accuracy Requirements, PS Docket No. 07-114, *Third Report and Order* (2014) (hereinafter "Third Report and Order") at para. 73.
[7] Wireless E911 Location Accuracy Requirements, PS Docket No. 07-114, *Fourth Report and Order* (2015) (hereinafter "Fourth Report and Order") at para. 6.
[8] *See* CTIA Z-Axis Cover Letter.
[9] *Id.* at pp 2–4.
[10] *Id.* at 4.

II. CTIA's original recommendation of ±5 meters in the z-axis is not a practical solution for public safety.

CTIA's originally proposed a z-axis metric of ±5 meters is simply not practical for public safety, as ±5 meters leaves open the significant probability that a caller is located on any of three adjacent floors inside a building. In its 2014 *Third Report and Order*, the Commission noted that a "vertical search ring greater than 3 meters from the caller could lead to mistaken floor identification."[11] Forcing responders to search three separate floors for a 9-1-1 caller — two of them with similar chances of containing the caller — during a violent crime or a fire rescue should not be a reality in 2018, let alone in 2021. NENA echoes the Commission's *Third Report and Order* proposal for a ±3 meter z-axis benchmark, as "floor-level" accuracy is the only acceptable substitute for dispatchable location.

III. Existing technologies, including those already tested by Test Bed, LLC, have demonstrated floor-level location accuracy capability.

As stated above, "floor-level" accuracy is defined in this comment as ±3 meters accuracy. CTIA has raised doubts regarding the ability of Polaris and NextNav to accurately estimate callers' z-axis locations in *all* locations under *all* conditions and on *all* handsets.[12] We will not rehash the specifics of the parties' claims in this comment, but NENA finds the objections raised by the carriers to be neither objectively dispositive nor particularly convincing to the 9-1-1 community.

This is not to say that the indoor location solutions tested in the Test Bed (and present in the marketplace generally) are perfect solutions. They have, however, demonstrated great progress since the issue of z-axis estimation of 9-1-1 callers was first raised, and show potential for large-scale deployment and adoption. These solutions will undoubtedly be honed and scaled for

[11] Third Report and Order at para. 73.
[12] *See generally* CTIA Z-Axis Cover Letter

widespread deployment in the coming years, and it is crucial that the public safety community and the communications industry generally be prepared to implement them.

IV. A forward-looking z-axis benchmark will spur innovation and development of indoor location technologies, as well as meet the needs of public safety

2018 has been a watershed moment for public safety communications. Commitments to public safety by tech industry titans like Google and Apple, as well as buildout of the National Public Safety Broadband Network (NPSBN) by AT&T have spurred a wave of innovation in the world of public safety communications. Other developments like cloud-based Computer Aided Dispatch (CAD), supplemental data providers, and device-based hybrid (DBH) location technologies are pushing a revolution in public safety technology and communications.

It is crucial for the Commission to take this revolution into account and issue forward-looking regulations which anticipate the rapidly advancing technological ecosystem, instead of lenient metrics that disincentivize investment in lifesaving innovations. CTIA itself concedes that alternative means of determining z-axis location are emerging, and that these means "may address some of the issues inherent to barometric pressure sensor-based systems."[13] Investment by z-axis location providers is driven, at least in part, by anticipation of floor-level accuracy requirements. Loosening these requirements would disincentivize investment in and development of z-axis location technologies and threaten the building momentum for innovation in the public safety space.

V. Should the Commission extend the deadline for proposal of a z-axis benchmark metric to allow for further testing, the Test Bed should move to test as expeditiously as possible for all concerned parties.

Based on discussions with CTIA, NENA understands that the Test Bed's soonest available testing windows for z-axis estimation are in Q4 of 2019 — should the Commission allow an

[13] CTIA Cover Letter at 5.

extension of the deadline for CTIA's z-axis, recommendation, this testing schedule is unacceptable. The timeline afforded the Test Bed up and until this point has been very generous, and any further unnecessary delays in testing will hurt the public safety ecosystem and the citizens it seeks to serve. Absent a commitment from the Test Bed to accommodate the exceptional circumstances that accompany a deadline extension, NENA encourages the Commission to set an additional deadline after consultation with the relevant stakeholders. Public safety will not tolerate needless delays in the testing and implementation process of such crucial technologies.

VI. Conclusion

NENA thanks the Commission for the opportunity to comment on this important matter and welcomes any follow-up questions. NENA hopes that the Commission's final regulations embrace the possible when it comes to accurately locating 9-1-1 callers in the z-axis.

Respectfully submitted,

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